In the Claims:

Please amend the Claims as follows:

1. (Currently Amended) A method for image segmentation in a three-dimensional environment, the method comprising:

receiving scan data as a plurality of original two-dimensional (2D) scans disposed with a scanning vector normal thereto;

selecting an arbitrary viewing vector ~~relative to the scan data~~ disposed non-parallel to the scanning vector;

rendering the scan data as a 3D image about the viewing vector;

displaying the rendered 3D image in an octant view;

selecting a range of new 2D image slices with the arbitrary viewing vector disposed normal thereto from within the octant view of the 3D image;

performing 2D segmentation on the selected slices ~~relative to the viewing vector~~ to obtain a segmented 3D object; and

displaying the segmented 3D object.

2. (Original) A method as defined in Claim 1, further comprising performing in-scene control of slices within the 3D image by grabbing tabs on the 2D slice images within a rendered 3D image.

3. (Original) A method as defined in Claim 2, further comprising providing sliding bars movable along restricted directions to guide the selection of slice ranges.

4. (Original) A method as defined in Claim 1, the step of selecting a range of slices within the 3D image comprising selecting 2D image planes along different axis to be displayed within the rendered 3D scene.

5. (Original) A method as defined in Claim 1, the step of performing 2D segmentation comprising determining the correspondence between a mouse point and the data within a 2D image in the 3D rendered image.

6. (Original) A method as defined in Claim 5, the step of determining the correspondence comprising determining the intersection of the mouse point and the 2D slice image within the 3D scene by:

receiving a mouse point in window coordinates;

inverse transforming the mouse point to get its corresponding first point in object coordinates of the scan data;

computing a second point along a straight vector from the first mouse point; and

determining the intersection point as a function of the first point, a distance from the first point to the intersection point, and a vector obtained by subtracting the first point from the second point.

7. (Original) A method as defined in Claim 1, the step of performing 2D segmentation comprising drawing the segmentation contours in a plurality of different planes In the rendered 3D image within a single drawing session.

8. (Original) A method as defined in Claim 7, further comprising back-projecting the point coordinates of the segmentation contours within each 2D image plane to the 3D coordinate space.

9. (Original) A method as defined in Claim 1, further comprising:

selecting a second viewing vector relative to the rendered 3D image; and

re-rendering the scan data as a 3D image about the second viewing vector.

10. (Original) A method as defined in Claim 1, the step of performing 2D segmentation comprising:

selecting an anchor point;

transforming the anchor point from object coordinates into window coordinates; and

determining an intersection of the anchor point with an image plane.

11. (Original) A method as defined in Claim 1 wherein the scan data is produced by a medical imaging device.

12. (Original) A method as defined in Claim 11 wherein the segmented 3D object is indicative of an organ.

13. (Original) A method as defined in Claim 1, further comprising manually overriding a section of 2D segmentation disposed contiguously between two sections of automatic 2D segmentation.

14. (Currently Amended) An apparatus for image segmentation in a three-dimensional environment, the apparatus comprising:

input means for receiving scan data as a plurality of original two-dimensional (2D) scans disposed with a scanning vector normal thereto;

selection means coupled with the input means for selecting an arbitrary viewing vector ~~relative to the scan data~~ disposed non-parallel to the scanning vector;

rendering means coupled with the selection means for rendering the scan data as a 3D image about the viewing vector;

first display means coupled with the rendering means for displaying the rendered 3D image in an octant view;

ranging means coupled with the display means for selecting a range of new 2D image slices with the arbitrary viewing vector disposed normal thereto from within the octant view of the 3D image;

segmenting means coupled with the ranging means for performing 2D segmentation on the selected slices ~~relative to the viewing vector~~ to obtain a segmented 3D object; and

second display means coupled with the segmenting means for displaying the segmented 3D object.

15. (Original) An apparatus as defined in Claim 14, further comprising control means for performing in-scene control of slices within the 3D image by grabbing tabs on the 2D slice images within a rendered 3D image.

16. (Original) An apparatus as defined in Claim 15, further comprising guiding means for providing sliding bars movable along restricted directions to guide the selection of slice ranges.

17. (Original) An apparatus as defined in Claim 14, the ranging means comprising selecting means for selecting 2D image planes along different axis to be displayed within the rendered 3D scene.

18. (Original) An apparatus as defined in Claim 14, the segmenting means comprising mouse means for determining the correspondence between a mouse point and the data within a 2D image in the 3D rendered image.

19. (Original) An apparatus as defined in Claim 18, the mouse means comprising intersecting means for determining the intersection of the mouse point and the 2D slice image within the 3D scene, including:

window means for receiving a mouse point in window coordinates;

inverse transforming means for inverse transforming the mouse point to get its corresponding first point in object coordinates of the scan data;

vectoring means for computing a second point along a straight vector from the first mouse point; and

function means for determining the intersection point as a function of the first point, a distance from the first point to the intersection point, and a vector obtained by subtracting the first point from the second point.

20. (Original) An apparatus as defined in Claim 14, the segmenting means comprising drawing means for drawing the segmentation contours in a plurality of different planes in the rendered 3D image within a single drawing session.

21. (Original) An apparatus as defined in Claim 20, further comprising back-projecting means for back-projecting the point coordinates of the segmentation contours within each 2D image plane to the 3D coordinate space.

22. (Original) An apparatus as defined in Claim 14, further comprising:

second selection means coupled with at least one of the first and second display means for selecting a second viewing vector relative to the rendered 3D image; and

second rendering means coupled with the second selection means for re-rendering the scan data as a 3D image about the second viewing vector.

23. (Original) An apparatus as defined in Claim 14, the segmenting means for performing 2D segmentation comprising:

anchoring means coupled with segmentation means to detect feature contours within the 2D image in the 3D scene

intersection means for determining the mouse coordinate correspondence with the 2D image plane

transforming means for converting the detected feature contour to windows coordinates for display in the 3D scene

24. (Original) An apparatus as defined in Claim 14, further comprising a medical imaging device for producing the scan data.

25. (Original) An apparatus as defined in Claim 24 wherein the segmented 3D object is indicative of an organ.

26. (Original) An apparatus as defined in Claim 14, further comprising manual override means performing coupled with the segmenting means for providing manually overridden 2D segmentation disposed contiguously between two sections of automatic 2D segmentation.

27. (Currently Amended) A computer-readable medium tangibly embodying a program of instructions executable by a machine to perform program steps for image segmentation in a three-dimensional environment, the program steps comprising:

receiving scan data as a plurality of original two-dimensional (2D) scans disposed with a scanning vector normal thereto;

selecting an arbitrary viewing vector ~~relative to the scan data~~ disposed non-parallel to the scanning vector;

rendering the scan data as a 3D image about the viewing vector;

displaying the rendered 3D image in an octant view;

selecting a range of new 2D image slices with the arbitrary viewing vector disposed normal thereto from within the octant view of the 3D image;

performing 2D segmentation on the selected slices ~~relative to the viewing vector~~ to obtain a segmented 3D object; and

displaying the segmented 3D object.

28. (Previously Presented) A computer-readable medium as defined in Claim 27, the program steps further comprising performing in-scene control of slices within the 3D image by grabbing tabs on the 2D slice images within a rendered 3D image.

29. (Previously Presented) A computer-readable medium as defined in Claim 28, the program steps further comprising providing sliding bars movable along restricted directions to guide the selection of slice ranges.

30. (Previously Presented) A computer-readable medium as defined in Claim 27, the program step of selecting a range of slices within the 3D image comprising selecting 2D image planes along different axis to be displayed within the rendered 3D scene.

31. (Previously Presented) A computer-readable medium as defined in Claim 27, the program step of performing 2D segmentation comprising determining the correspondence between a mouse point and the data within a 2D image in the 3D rendered image.

32. (Previously Presented) A computer-readable medium as defined in Claim 31, the program step of determining the correspondence comprising determining the intersection of the mouse point and the 2D slice image within the 3D scene by the program steps of:

receiving a mouse point in window coordinates;

inverse transforming the mouse point to get its corresponding first point in object coordinates of the scan data;

computing a second point along a straight vector from the first mouse point; and

determining the intersection point as a function of the first point, a distance from the first point to the intersection point, and a vector obtained by subtracting the first point from the second point.

33. (Previously Presented) A computer-readable medium as defined in Claim 27, the program step of performing 2D segmentation comprising drawing the segmentation contours in a plurality of different planes in the rendered 3D image within a single drawing session.

34. (Previously Presented) A computer-readable medium as defined in Claim 33, further comprising the program step of back-projecting the point coordinates of the segmentation contours within each 2D image plane to the 3D coordinate space.

35. (Previously Presented) A computer-readable medium as defined in Claim 27, the program steps further comprising:

selecting a second viewing vector relative to the rendered 3D image; and

re-rendering the scan data as a 3D image about the second viewing vector.

36. (Previously Presented) A computer-readable medium as defined in Claim 27, the program step of performing 2D segmentation comprising:

selecting an anchor point;

transforming the anchor point from object coordinates into window coordinates; and

determining an intersection of the anchor point with an image plane.

37. (Previously Presented) A computer-readable medium as defined in Claim 27 wherein the scan data is produced by a medical imaging device.

38. (Previously Presented) A computer-readable medium as defined in Claim 37 wherein the segmented 3D object is indicative of an organ.

39. (Previously Presented) A computer-readable medium as defined in Claim 27, the program steps further comprising the step of performing manually overridden 2D segmentation disposed contiguously between two sections of automatic 2D segmentation.

40. (New) A method as defined in Claim 1 wherein the selected arbitrary viewing vector is disposed non-normal and non-coincident relative to the original 2D scans.